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"A Review of the Species of the Genus Pimephales," by Willis S. Blatchley.

The deaths of Mrs. S. R. Barton, a member, and of John Gwynn Jeffries, a correspondent, were announced.

Spicate Inflorescence in Cypripedium insigne.—Mr. THOMAS MEEHAN referred to a specimen on the table of *Cypripedium insigne*, an orchid from the cooler parts of the East Indies, which had a spike with two flowers and other undeveloped buds, the normal character being a one-flowered scape. These departures from the normal form afforded valuable lessons, though frequently passed over as mere freaks of nature. A spicate inflorescence was a common characteristic in allied species. From the illustration before us, we might infer that the one-flowered kinds were species in which the power to develop a proper spike had been arrested. We might expect to see attempts at this form of inflorescence in *Cypripedium acaule* of our own country.

A very important lesson from these occasional departures had but recently the attention given to it that it properly deserved, and that was that whenever any particular plant departed from its normal form, other characters came into existence, which, in a separate plant would, and often did, obtain for the new departure the rank of a species. In this instance, the second flower on the spike was different from the lower and normal one in the upper segment of the perianth (sepals) having a regular outline. In the normal form it was so crumpled as to present a trilobed appearance. In the normal form the labellum was so elongated as to be three times the length of the column. In the upper flower the labellum was but double the length, giving it a somewhat globular appearance. There were other variations that formed a combination of characters quite sufficient to mark a species if they were constantly produced in a separate state. Why could not this rare occurrence become a continuous one, and thus a new species be formed—created, we may say—out of an older one? There can be no reason. We may call this a freak of nature, but it could not have occurred without that combination of circumstances which we call law. We have no warranty for saying that a law which has operated to produce a departure in a solitary instance like this, might not have a more permanent power at some other time. Nor is there any warranty for believing that a law that has operated as we see here on one plant, might not operate on a hundred, or on all the plants of a district, or even on plants in separate districts widely separated from each other.

In a paper by himself published in the Proceedings of the Troy Meeting of the American Association for the Advancement of Science, " On the introduction of species by sudden leaps," as well as elsewhere, he had given illustrations of the sudden appearance of identical forms in widely separated localities. If we may generalize from these facts, as we seemed almost warranted in doing, we need not be always looking for the links supposed to be missing, which the belief in the hypothesis of development by slow modifications compelled us to search for, nor need we be reduced to the only alternative of believing that all new species sprang from one parent, which formed a centre of distribution in each particular case. A whole species might be called into existence in the shape of hundreds of individuals or in numerous centres, if only a law that we know from these instances can operate suddenly and exceptionally should continue regularly to act. Such a belief would tend materially to remove difficulties in the way of theories of evolution, that now prevented a full acceptance thereof.[1]

If we can conceive that a suddenly introduced and yet permanently acting force was introduced to operate on some lower beings, the difficulty might be removed. It seemed to him that in some palæontological fields there are evidences of rapid evolution at certain periods, and of greater permanency at others, and this could only be by the introduction of a force equal to the emergency, as in this sudden case brought to the notice of the Academy above.

It would be an interesting study to endeavor to trace the laws that operated in these changes. In this study we must leave behind us impressions which we have imbibed from the idea of mere freaks, hybrids, a return to primitive forms, and other mere guesses with which scientific literature abounds. On the table before us, he observed, are the recent Proceedings of the Royal Society of Tasmania, in which is an account of a remarkable change in a potato, a variety brought from Scotland a few years previously, known as Patterson's Victoria, a variety with white flowers and round white tubers, which, after a culture of a few years in the new climate, produced purple flowers, flat ovate tubers, and these tubers with pink eyes. The members of that society looked at it as a return to the original form of some hybrid variety. We here, with other facts before us, would rather regard it as the effect of environment operating on some innate, and so far unknown, cause of change which might lie dormant through long ages till the peculiar conditions of the environment called them into active life. There seemed in fact seeds for form, as well as seeds for individuals, awaiting the required conditions for germination and rapid growth. In the one case we were able to perceive and appreciate them, except in some of the lowest organisms. The principle that contained the germ of form was, however, yet as wholly unknown as that of the supposed disease-germs of the atmosphere.

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[1] Principal Dawson has suggested that one difficulty in the way of accepting the prevalent theories of the evolution of man, comes from the fact that anthropology affords no "missing link" in the human skull. The oldest hitherto found shows as full a development as in modern man.

MARCH 10.

The President, Dr. LEIDY, in the chair.

Twenty-four persons present.

The following papers were presented for publication:—

"New Genera and Species of Fossil Cockroaches from the Older American Rocks," by Samuel H. Scudder.

"A Revision of the North American Melicæ," by F. Lamson Scribner.

"A Review of the American Eleotridinæ," by Carl H. Eigenmann and Morton W. Fordice.

The deaths of Samuel Powell and Geo. Whitney, members, and of Benjamin Silliman, Jr., a correspondent, were announced.

Rhinoceros and Hippotherium from Florida.—Prof. LEIDY directed attention to some fossil remains, recently received from Dr. J. C. Neal, of Archer, Florida, and obtained by him from the same deposit noticed in the Proceedings of 1884, p. 118. Dr. Neal writes that he had again examined the locality in company with Prof. L. C. Johnson, who reports that the deposit overlies the Vicksburg limestone of Eocene age. Dr. Neal adds that the deposit appears to be the portion of the border of a lagoon of post-Tertiary age, and that it is now about 100 feet by 50 feet in extent. He also remarks that he has anxiously looked for relics of man, but thus far in vain. The fossils are mingled together in the greatest confusion, are badly fractured, but not water-worn.

The remains submitted, besides several less characteristic fragments of a crocodile, a carnivorous animal about the size of a fox, and of a lama, consist of two well-preserved teeth of a Rhinoceros and a Hippotherium.

The tooth of the rhinoceros fortunately happens to be one of the most characteristic of the series, and presents differences sufficiently from those of the many extinct forms of this country to render it probable that it indicates another species. The specimen is the crown, but slightly worn, of a last upper molar of the left side. It is especially remarkable for the extent of production of the intermediate folds of the chief lobes of the crown, in comparison with their condition in known forms of the genus. The fold of the anterior lobe is directed backward about half the interval of the lobes, and extends from the base to the triturating border of the crown. Its upper portion is half cylindrical; its lower portion compressed from without inward, and half elliptical in the length. It has the shape of a knife with a